MARKET STREET ELEVATED RAILWAY
Market Street, between 69th and 46th Streets
Philadelphia
Philadelphia County
Pennsylvania

HAER No. PA-507

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

HAER PA 51-PHILA, 719-

HISTORIC AMERICAN ENGINEERING RECORD

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Location: Market Street, between 69th and 46th Streets
Philadelphia
Philadelphia County
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Note: For shelving purposes at the Library of Congress, Philadelphia was selected as the official location for all stations in the Market Street Elevated Railway documentation, although the actual location of the 69th Street Terminal is in Upper Darby, Delaware County, and that of Millbourne Station is in Millbourne, Delaware County.
USGS Quad: Lansdowne, PA and Philadelphia, PA 1:24,000
UTM Coordinates: 18.477827.4423374; 18.481775.4422947

Construction Date: 1904 - 1908

Builder: Philadelphia Rapid Transit Company

Chief Engineer: William S. Twining

Present Owner: Southeastern Pennsylvania Transportation Authority
1234 Market Street
Philadelphia, Pennsylvania 19107

Present Use: Elevated railway

Significance: This elevated railway was the first rapid transit line erected in Philadelphia at the turn of the century. Prior to its construction, electrified surface lines traversed city and suburban streets providing transportation between neighborhoods. With the completion of the elevated railway, passengers were able to enjoy a swift ride into Center City from their residences in outlying areas. The advent of the Market Street line profoundly affected residential patterns and emphasized the importance of restructuring the regional transit system to move people to and from downtown. Moreover, this superstructure is notable for several engineering techniques: it was the first elevated system in the country built with rock ballast on a solid concrete floor, helping to reduce noise and prevent operational fluids from dripping into the street; the track featured side girders placed higher than the rails to prevent cars from jumping the track; it operated on an electro-pneumatic block signal system which employed multi-colored signals to distinguish them from broken signals; and it incorporated an overlap system to ensure a consistent clear distance between trains of at least one city block.

Project Information Statement: The Market Street Elevated Railway between Millbourne Station in Delaware County and 46th Street Station in Philadelphia will be reconstructed. The project includes replacement of the Millbourne Station and the Market Street Elevated superstructure. Plans call for the reconstruction of the stations from 63rd Street to 46th Street, but efforts will be made to retain historic features where possible. To mitigate the adverse effect, the Pennsylvania Historical and Museum Commission stipulated HAER documentation of the existing structures. This documentation was undertaken to fulfill that stipulation.

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INTRODUCTION

The Market Street Elevated Railway extends west-east along Market Street between 69th Street in Upper Darby Township, Delaware County, and 46th Street in the City of Philadelphia, Philadelphia County, Pennsylvania. Constructed between 1904 and 1908, the elevated structure is situated along Market Street between 63rd and 46th Streets. West of 63rd Street, the railway crosses Cobbs Creek, a waterway that forms the boundary between Philadelphia and Delaware Counties. From this point, the railway travels at ground level through Millbourne and terminates at the 69th Street Terminal in Upper Darby Township, Delaware County. The tracks and stations form part of the Market-Frankford Line, which is owned and operated by the Southeastern Pennsylvania Transportation Authority (SEPTA), 1234 Market Street, Philadelphia, Pennsylvania, 19107.

The Market Street Elevated Railway (HAER No. PA-507) is composed of the Market Street Elevated superstructure, an associated substation (HAER No. PA-507-E), and the following railway stations: 69th Street Terminal (HAER No. PA-507-A); Millbourne Station (HAER No. PA-507-B); 63rd Street Station (HAER No. PA-507-C); 60th Street Station; 56th Street Station (HAER No. PA-507-D); 52nd Street Station (HAER No. PA-507-F); and 46th Street Station (HAER No. PA-507-G). The Market Street Elevated Railway Historic District, which consists of the Market Street Elevated Railway, was determined eligible for the National Register of Historic Places under Criterion A, historical significance and Criterion C, design/construction in August 1996.

Built at the turn of the century, the railway is significant as the first rapid transit line in the City of Philadelphia. Prior to its construction, electrified surface lines traversed city and suburban streets providing transportation between neighborhoods. These lines were not capable of moving large numbers of people to and from downtown. With the completion of the Market Street Subway-Elevated in 1908, passengers were able to enjoy a swift ride into Center City from their residences in outlying areas. Housing construction in northern West Philadelphia boomed along the new line as the population more than doubled between 1900 and 1910. Moreover, trolley service enabled passengers from suburban areas to transfer at many stations along the line. The advent of the Market Street line profoundly affected residential patterns and emphasized the importance of restructuring the regional transit system to move people to and from downtown.

Additionally, the Market Street Elevated Railway is structurally and architecturally significant. The elevated superstructure was the first elevated railway in the United States to have a concrete sub-floor, which prevented water and operational fluids from dripping onto the street below. In addition, the railroad ties were laid on rock ballast to muffle the noise of trains. The Market Street Elevated Railway retains architectural integrity as well. The 69th Street Terminal, the endpoint of the Elevated, was determined eligible for listing in the National Register of Historic Places in 1985. All the stations and the single historic substation between

69th Street Terminal and 46th Street embody distinctive characteristics of early twentieth-century architectural styles, except for the 60th Street Station, which was rebuilt after a fire in the early 1970s and so contains no historic features (pers. com. Kevin Gross to Allison Rachleff, 1996). For example, the historic brick substation at Market and Allison Streets retains Classical-style details such as a round-arch central opening topped by a fanlight with a symmetrical wood design. The one-story, frame station building at Millbourne conveys elements associated with Craftsman-style buildings through its use of exposed flanges at the roofline and glass and panel doors. Stations along the elevated viaduct still retain the feeling and association of Classical-style buildings. The exterior facades are sheathed in copper panels subdivided by pilasters. Clerestory windows and cornices emphasize the rooflines. Station shelters and rails retain decorative metal features, such as pierced spandrels, as well. Modern alterations have occurred at the stations. These include the construction of mezzanine levels, reconstruction of stairways, installation of modern token booths, and the application of metal over the original oak walls of the station interiors. Despite these changes, the stations represent a significant and distinguishable entity that has served residents of West Philadelphia for nearly a century.

PHYSICAL DESCRIPTION

The elevated structure commences approximately 243.84 meters (800 feet) west of the intersection of 63rd and Market Streets, near a now-vacant Sears Roebuck building located on the northern side of the tracks. The Market Street Elevated Railway is supported by a riveted steel superstructure, which consists of parallel steel pillars set upon foundations that flank West Market Street from 63rd to 46th streets. The concrete, cement, gravel and crushed stone foundations are shaped like truncated pyramids. They measure 0.65 square meters (7 square feet) at the bottom and taper to 0.37 square meters (4 square feet) at the top. Parallel steel pillars, strengthened by steel lattice webbing, rise from the foundations. The pillars support a Pratt and Warren deck truss system, which in tum supports the railway deck. Each set of pillars is joined to the beams by steel brackets. An under-running third rail system provides power to the cars (pers. com. Brian Woodburn, Senior Project Engineer, SEPTA, May 19, 1999).

The elevated railway comprises a two-track viaduct that is noted for its unique construction. It consists of riveted cross girders spaced 3.04 to 3.35 meters (10 to 11 feet) apart on longitudinal lattice girders. A steel floor sheathed in a Portland cement deck is set upon the girder network. The deck is reinforced with 9.52-millimeter (3/8-inch) deformed bars to resist shrinkage and temperature cracks, as well as to prevent leakage. A three-percent downward slope of the deck provides drainage to a central gutter, which is formed by longitudinal dams with scuppers. Water is discharged at each column bent and conducted to collector boxes at the tops of the south columns where it passes to the street level through pipes. Railroad ties are laid upon rock ballast to reduce the noise of trains. The concrete sub-floor prevents rain and fluids from reaching the roadway below.

The superstructure runs along Market Street, supporting five elevated stations. East of the 46th Street Station, the elevated viaduct merges with the subway portion of the line at 44th and Market Streets. In order to avoid obstruction of the street, the subway tunnel portal is located north of Market Street on the property of the Pennsylvania Hospital. This linkage serves to connect the Market Street Elevated with the Market-Frankford Subway Line.

HISTORICAL BACKGROUND

The Market Street Elevated Railway was the sixth mode of mass transit service established on Market Street, which has served as one of Philadelphia's principal west-east arteries for most of the City's history. Stagecoach service was introduced on Market Street between the Delaware River and Center City in 1831. Passenger service via larger horse-drawn coaches—called "omnibuses"—was inaugurated in 1833. Initially this service was only provided along that portion of Market Street extending eastward from 14th Street (Broad Street). Within a few years it was expanded to serve all parts of the City between the Delaware and Schuylkill Rivers. Five years after a horse-powered railway known as "the City Railroad" was opened along Broad Street between Vine Street and South Street in 1833, an west-east branch sometimes referred to as "the Market Street Railroad" was opened along Market Street between the Delaware River and Broad Street. Neither of these railroad lines survived more than a couple of decades. They were abandoned as Philadelphia grew busier, more congested, and less accepting of railroad trains rolling at a maximum of 6.43 kilometers (4 miles) per hour through the heart of its mercantile district (Roberts 1980:28-29).

By 1852 omnibus lines reached over to the western side of the Schuylkill River, into what had become known as "West Philadelphia." Omnibuses were the principal people-movers in Philadelphia until the late 1850s. There were 30 omnibus lines and 320 omnibuses operating in the City as of 1858, the year in which horse-drawn streetcars or "trolleys" were introduced. Within two years, 19 streetcar lines were operating in the City, and all but one or two omnibus lines had been discontinued. Among the streetcar lines was the Market Street Horsecar Passenger Railway, which operated between 41st Street and Front Street on the Delaware River (Rosenthal 1963:55). Elsewhere in West Philadelphia, streetcar service was established on Woodland Avenue, Spring Garden Street, and Lancaster Avenue (Weaver 1930:101-02). In 1864, the Pennsylvania Railroad Company completed its new terminal in West Philadelphia at 30th and Market Streets, linking its steam-powered railroad with the nascent streetcar system. This facility quickly became the principal depot for travelers and cargo en route from New York City and points westward, contributing greatly to the growth of West Philadelphia (Rosenthal 1963:52-3).

By 1883, horse-powered streetcars along Market Street had been replaced by cars propelled by electricity-powered underground cables. Cable-driven cars were in turn rendered obsolete by the introduction of electric streetcars in 1896. By that year, every major thoroughfare in

Philadelphia featured streetcar service, giving the City the highest total length of surface railway lines of any city in America, with the exception of Chicago (Spiers 1897:7).

The expansion of Philadelphia's mass transit system was the most significant factor leading to the creation of suburban settlements such as West Philadelphia, as well as to the associated segregation by income and ethnicity that characterized Philadelphia's development between 1860 and 1930. In the early industrial period, poor and minority housing was scattered throughout the City, typically clustering in alleyways or over storefronts adjacent to more-affluent blocks. Industrial growth led to the construction of larger office buildings and factories, attracting increasing numbers of workers who needed nearby housing. Simultaneously, the streetcar system allowed managers with disposable income to move away from their factories and surrounding low-income housing, creating an affluent periphery around a poorer core. As the rich fled further out to newer suburbs, their houses were purchased by middle managers, clerical workers, and labor aristocracy seeking the trappings of middle-class respectability (Warner 1968:56-57, 169).

Such was the case with the population flow through West Philadelphia. Originally a loose collection of densely settled communities, each oriented around a specific industry or enterprise, West Philadelphia, by the turn of the twentieth century, consisted of small industrial concerns and their associated workers' residences, as well as inns, taverns, farms, and country estates. The Pennsylvania Railroad Company was the first to provide service to West Philadelphia, with the Philadelphia & Reading and the Baltimore & Ohio Railroad Companies later establishing small-but-influential presences in the area. Institutions seeking larger campuses also relocated to West Philadelphia. They included the University of Pennsylvania, Drexel University, and the Pennsylvania Hospital for the Insane.

By the dawn of the twentieth century, most of West Philadelphia's industry had been driven out by residential and institutional development. Although planned suburbs marketed toward executives and professionals existed, most migrants to West Philadelphia were of the new middle classes and brought a diverse ethnic mix to the area. Abundant and affordable brick rowhouses drew clerical workers and skilled laborers. Prosperous blacks, Jews, and Italians from South Philadelphia joined Irish and long-established American families from North Philadelphia in making new homes for themselves in West Philadelphia (Warner 1968:194). Even as it grew apace, West Philadelphia remained oriented around the Market Street corridor, where country roads meshed with the urban gridiron pattern, channeling traffic into and out of Center City (Weaver 1930:95-96).

Growing traffic congestion in the early 1890s forced Philadelphia's city planners to consider elevated train systems and underground subways. Market Street was the logical geographic axis for an elevated or underground east-west line, but residents resisted the notion of having an elevated railway passing through the City's central business district, and the complex network of utility conduits buried beneath the street—a daunting complex that had never been

comprehensively mapped—discouraged planners from seriously investigating the subterranean possibilities. In the face of public opposition, City officials authorized construction of a "Quaker City Elevated Railway" along Market Street in the mid-1890s, but rising construction costs and delays eventually forced the scrapping of this project after only a single pillar support had been erected (Cox 1967:3).

As of 1900, the Union Traction Company owned and operated most of the streetcar lines in Philadelphia. A threat to the Company's supremacy was mounted in June 1901, when articles of association were drawn up for a corporation in the name of Philadelphia contractor John Mack, with authorization to establish street-level and elevated railway lines on nearly every street in Philadelphia that was not already served by streetcars. It is believed that "the guiding light behind [Mack and his] new companies was Augustus Belmont of New York," though "what [Mr. Belmont's] intentions in Philadelphia might have been are as unclear as his connections with the Mack combine." In any case, the Union Traction Company was stirred into action. In the spring of 1902 its principals organized "the Philadelphia Rapid Transit Company" (PRT) for the purpose of absorbing Union Traction and the various properties of the Mack combine, which included a not-yet-active "Market Street Elevated Passenger Railway Company" (a few weeks earlier, the Market Street Elevated Passenger Railway Company had absorbed all of the other elevated companies in the City). Eventually, the PRT purchased all of the capital stock in the Mack properties. On January 19, 1903, the PRT leased from the Mack combine the City's single surviving elevated train company, the Market Street Elevated Passenger Railway Company, for a period of 997 years (Cox 1967:3).

With the right to build rapid transit lines throughout the City, the energized PRT lost little time in undertaking rapid transit construction. During the first weeks of 1903 it obtained approval from the City to construct an elevated railway along Market Street west of the Schuylkill River. The extension of this line eastward into center city was also approved, so long as the eastern portion was constructed as a subway. The project soon divided itself into several overlapping phases: an elevated railway would be built from the Schuylkill River through West Philadelphia to a terminus in Upper Darby; a bridge would be constructed to carry the Elevated over the Schuylkill River; a four-track subway would be installed beneath Market Street between the Schuylkill River and City Hall; a two-track subway would be built from City Hall to an outlet at Front and Arch Streets; a loop subway would be laid under Broad, Walnut, 8th, and Arch Streets to serve center city (this component was never realized); and an elevated railway would be developed on Delaware Avenue to serve ferries traveling to and from New Jersey (Cox 1967:6). Many PRT engineers were involved in designing the system. Among those who signed off on the engineering plans were Chief Engineer William S. Twining, Principal Assistant Engineer Charles M. Mills, Assistant Engineer R. Goddifroy, and Structural Engineer A.B. Perley (Philadelphia Rapid Transit Company 1905).

Construction of the four-track-wide, multi-span through-truss bridge over the Schuylkill River commenced on July 6, 1903. A year passed before employees of the Millard Construction

Company began work on the elevated portion of the Market Street line west of the river, which was divided into two sections: 63rd Street to 45th Street, and 45th Street to the river bridge. Beginning on October 17, 1904, work proceeded on both of these sections simultaneously. Construction workers began by laying concrete foundation piers to support the elevated superstructure (Cox 1967:6). The foundations measured 1.52 meters (5 feet) in height and were shaped like truncated pyramids. Where necessary, water and gas mains were carried through the foundations in sleeves, with space enough to allow the foundations to settle without breaking the mains (Anonymous 1908). Cast steel fenders were also attached to the foundation exteriors to prevent vehicle collisions from damaging the steel uprights (*The Evening Bulletin* 1907).

After the foundations were completed, work on the superstructure commenced on August 22, 1905. First, steel pillars were raised upon the foundations to support the two-track viaduct. Next to go up were the girders and truss network that supported the floor of the elevated system. Travelers (cranes that moved on rails), rather than street cranes, were used to erect the superstructure because the Elevated was erected over a two-track trolley system powered by overhead wires. This equipment moved along temporary tracks laid upon the steel deck and was equipped with 19.8-meter (65-foot) booms that placed the structure ahead of it as it moved forward. This erection system prevented clashes with the trolley line, which maintained service along Market Street throughout construction of the Elevated (Cox 1967:6).

The railway took a variety of forms as it was constructed through the City. The line was built on cut-and-fill within retaining walls from the 69th Street Terminal to Millbourne Mills (66th Street) in Delaware County. Where it crossed into Philadelphia County, the railway was converted into a two-track elevated structure over the center of Market Street, and continued thus to the bridge over the Schuylkill River, which had been completed in 1905. Approaching the bridge, two elevated lines running on inner express tracks had to descend to meet two streetcar lines crossing the bridge on the outer tracks. Upon reaching Center City, all four sets of tracks were directed into a subway tunnel to continue on to City Hall. At City Hall, tracks were laid so surface cars could turn around to return westward, while Elevated cars could continue on to the elevated railway at the Delaware River, and connect with the ferries at South Street (Cox 1967:15).

It took 2,250 workers five years to build the Market Street Elevated Railway system. The price tag was $18 million, or nearly twice the amount that had originally been anticipated (Cox 1967:15). There was much to admire about the new system. Even though it was built after many other cities had constructed their own elevated railways, Philadelphia's elevated system incorporated many unique engineering features. The railway was the first system in the nation built with rock ballast on a solid concrete subfloor over a steel deck. Cross ties were laid upon this ballast—as was the practice in conventional railroad construction—which served to substantially dampen train noise. The under-running third rail system was also unique—only Metro North (part of the New York transportation system) used a similar system (pers. com. Brian Woodburn, Senior Project Engineer, SEPTA, May 19, 1999). To help prevent fluids

dripping from the track into the street, decks were built on a three percent slope in order to shed fluids to a central gutter. Water was discharged at each column bent and conducted to collector boxes at the tops of the south columns where it passed to the street level through pipes (Anonymous 1908). Only Paris and Berlin had elevated railways that incorporated this feature. Additionally, the 11.92 kilometers (7.41 miles) of structure carrying 27.68 kilometers (17.2 miles) of single track featured side girders placed higher than the rail on which the cars ran. This innovative safety feature was designed to prevent derailed trains from jumping off the elevated structure.

The signal system represented an engineering advancement as well. Designers installed an electro-pneumatic block-signal system in which electricity served as the controlling element and compressed air provided the motive force. Automatic signals were arranged close together on an overlapping system to ensure a safe traveling distance between trains equal to the length of a city block. Automatic stops were also placed along the rails to bring trains to a complete halt. In addition, electro-pneumatic interlocking plants were used in the switching system to ensure that the switches remained locked until activated by engineers in the switch towers (*The Evening Bulletin* 1907).

Multi-colored signals were mounted to iron poles and placed conspicuously at regular intervals along the track. Red lights indicated danger, yellow signified the need for caution, and green denoted permission to proceed. Designers did not employ white lights, because a white light would not be distinguishable from a broken signal. If an operator attempted to overrun a danger signal, the overlap mechanism brought the train to a halt. Designers also included a sidewalk along the entire length of the line so workers could safely access any part of the system and repair malfunction in an expedient manner (*The Evening Bulletin* 1907). No historic signal heads remain today (pers. com. Brian Woodburn, Senior Project Engineer, SEPTA, May 19, 1999).

Work on the Elevated's stations commenced in the summer of 1906. Stations were designed to exacting architectural and efficiency standards. Prior to completion of the subway-and-elevated system, PRT joined forces with two suburban surface and rail companies to erect a large terminal in Upper Darby Township, Delaware County. This facility would connect the Market Street line with electric lines and railways serving portions of Delaware, Montgomery, and Chester Counties (Anonymous 1908). When the Romanesque 69th Street Terminal was completed in 1906, it included repair shops, a power house, sidings, storage yards, and other facilities associated with system maintenance (Cox 1967:9). The power house was demolished in the early 1970s; it was replaced by the substation at Millbourne which had been built in the late 1960s (pers. com. Brian Woodburn, Senior Project Engineer, SEPTA, May 19, 1999). Meanwhile, construction proceeded on nine additional stations, located at intervals averaging approximately 0.80 kilometers (0.5 miles), which placed them at the intersections of West Market Street and 66th, 63rd, 60th, 56th, 52nd, 46th, 40th, 36th and 32nd Streets (Anonymous 1908). The 66th Street Station would become known as "Millbourne Station."

When the first train ran along the Elevated line between 69th and 15th Streets in January 1907, three of the stations along the route—at 36th, 46th, and 63rd Streets—had not yet been completed. All of the subway-and-elevated system's components did not become fully operational until late 1908. The first generation of rolling stock was built by the Pressed Steel Car Company of Pittsburgh. PRT commenced operations with 40 cars, but added 60 more within two years, then 65 and 50 additional carriages in 1911 and 1913, respectively (Cox 1967:15-16). The original 52-passenger cars were constructed of solid steel and ornamented with mahogany interiors and woven cane chairs. They were heated and lighted, and featured three sets of doors—located in the front, center, and rear of each car—which opened and closed by force of compressed air. As long as at least one of its doors was ajar, a train could not be made to proceed. Each car had two 125-horsepower box-type motors located on the undercarriage. Connecting the cars by cables allowed operators to join an unlimited number of cars, with the entire train controlled by a master switch located in the cab of the foremost car. The trains ran at 5-minute intervals in trains of 2, 3, 4, or 5 cars, according to demand, in a practice pioneered by the London Underground (Anonymous 1908). At 69th Street Station, the cars had to cross over the rails and "change ends" to turn around. This meant that the cars, which could be operated from either end, did not need to be turned around in order to reverse direction. A train merely need to switch over to the appropriate railway and head back from where it came. Later, in 1919, this was changed to a loop bridge. In this system, a train would continue on the track after unloading its passengers at the terminal station. It continued along a loop around to the track going back through the city (pers. com. Brian Woodburn, Senior Project Engineer, SEPTA, May 19, 1999).

The 60th Street Station was completed prior to the opening of the Elevated in 1907. In 1931, the station was similar to the others along the line. Station buildings, located on both the east and westbound platforms, housed waiting rooms, men's and women's toilets, token booths and locker areas. Amenities such as water coolers and candy machines were also provided. Staircases led to the street level at both east and west ends of each building. Turnstiles and sliding gates provided entry and egress to and from the platforms. The buildings themselves measured approximately 17.37 meters (57 feet) across by 5.02 meters (16.5 feet) deep, not including exit stiles and stair landings (Philadelphia Rapid Transit Company 1931). By 1934, both station buildings had been altered. While each retained the same exterior dimensions, the toilets and locker areas were removed. The waiting rooms were separated into men's and women's sections, with a lobby between the two. The token booths' shapes were altered as well, and they could no longer be accessed from either waiting room. The stairway configurations remained, but the turnstiles and sliding gates were replaced by different styles (Philadelphia Rapid Transit Company 1934). In the 1970s the original 60th Street Station was destroyed by fire. It was subsequently rebuilt using modern materials, but still conforming to the historic size and maintaining the historic stairway paths (pers. com. Kevin Gross to Allison Rachleff, 1996).

The subway portion of the Market Street line operated from 5:45 a.m. until midnight, while the surface cars ran 24 hours a day (*The Evening Bulletin* 1908). In full operation, the line included more than 185.07 kilometers (115 miles) of subway and elevated trackage, linking 18 stations. The line commenced at ground level at the 69th Street Terminal in Upper Darby Township, became elevated at 63rd and Market Streets, and remained elevated as it crossed the Schuylkill River Bridge. On the east side of the river the train traveled into a subway tunnel located at 23rd and Market Streets. From this point, the train continued along Market Street, stopping at subway stations situated at 15th, 13th, 11th, 8th, 5th, and 2nd Streets in Philadelphia. Connections were made to trolley service at all but five stations along the line; free transfers were given to all cross-town lines in West Philadelphia. PRT boasted that it took only 27 minutes to travel from 69th Street Station in Upper Darby to 2nd Street Station in Center City. Cars traveled at 24.14 to 25.74 kilometers (15 to 16 miles) per hour, with stops lasting twenty seconds each. Service into the central business district thus took less time and was more direct than trolley service. With the completion of the Market Street line, mass transit entered a new era where the goal became the quick movement of people into and out of Center City. A passenger could now travel between 2nd and 69th Streets in roughly half the time that it had taken a streetcar to make the same journey (Anonymous 1908).

The new elevated-and-subway system was enthusiastically received by most of Philadelphia's citizens. Twenty-six million fares were sold in 1909, the system's first full year of operation. Despite this success, the PRT did not proceed with additional rapid transit construction. The high cost of building the core system had left the Company in financial straits, and it was more interested in expanding its less-costly surface lines and protecting its monopoly on public transportation in the City (as of 1911, the PRT controlled all of the trolleys, buses, taxicabs, subways, and elevated railways operating in Philadelphia). City officials decried this reticence, declaring that rapid transit development was essential for municipal growth. In 1915, Philadelphia's Transit Commissioner, A. Merritt Taylor, announced a comprehensive transit plan that the City threatened to implement itself if the PRT did not move more quickly. Taylor's plan called for an elevated line to Frankford, a subway beneath Broad Street, a delivery route for central Philadelphia and a subway and elevated line for Henry Avenue. PRT officials complained bitterly about the prospect of competing with a City-run transit network, and claimed that the potential competition impeded their ability to obtain credit for development. Unwilling to wait any longer, the City proceeded with several components of it plan. The Frankford Elevated was opened for service on November 5, 1922. Connected physically with the Market Street line at Front and Arch Streets, the Frankford El became part of the PRT's system when the Company was awarded a contract to operate it shortly after its inauguration. The City-operated Broad Street Subway was opened in 1928 after many delays. Several subway tunnels for the other lines were partially built and then abandoned, leaving sealed bits of tunnel scattered beneath the City (Cox 1967:17).

The opening of the Market Street Elevated in 1907 forever changed the character of West Philadelphia, which was now within a 15-minute train ride of Center City. An article published

in a Philadelphia newspaper two decades after the El's inauguration described the transforming effects of the railway in the following terms:

> The Market Street Elevated and subway was an immediate factor in building up West Philadelphia. In advance of its construction there were erected in that section of the city between 1900 and 1910, nearly twenty-four thousand dwellings and many apartment houses. The population of the section grew from 148,548 in 1900 to 247,928 in 1910. Ten years later it was 359,628. Now [1928] it is close to 400,000. Supplementing that growth has come the great expansion beyond 69th st., due directly to the fast transit service. The growth of West Philadelphia is shown by a count of 27,691 dwellings in 1900, of over 50,000 in 1910, and of more than 100,000 at present (*The Evening Bulletin* 1928).

The writer of a newspaper article published in 1932 offered the following reflections on the Market Street Elevated's legacy:

> When the first [elevated] train came into the center of [Philadelphia] there were still some farms, many open fields, and more unoccupied lots that are now filled with solidly built rows of houses or shops. One could walk along 52nd street, south of Market, and see open lots within a block or two of the elevated. Along Market street, west of 52nd, were many undeveloped areas. All over West Philadelphia were gaps to be filled before it became the city that it is today. [Before the opening of the elevated railway] Twenty-five years ago, only a short distance from Baltimore or Chester Avenues in the western end, corn fields were waving in the summer, vegetable gardens abounded where shops and stores and movie houses thrive today. Old homesteads . . . showed how recently this section had been "in the country."
>
> . . . Where [West Philadelphia] had 50,000 dwellings in 1910 it had 90,000 in 1931. More than half the homes in West Philadelphia have been erected since the construction of the elevated railway was begun. Where the region in 1906, a year before the start of the elevated service and nearly two years before it was wholly in operation, showed an assessed valuation of taxable realty of $157,000,000, five years later it had an assessed value of $237,000,000. In 1920 it had increased that figure to $319,000,000. Then, with the great rise in value which followed the World War, assessment of the taxable realty in the six wards mounted rapidly until last year it reached a total of $628,000,000 (*The Evening Bulletin* 1932).

In contrast to the development pattern in Center City, the Market Street Elevated in West Philadelphia did not serve as a boundary line that separated the area into distinct communities. Instead, the Elevated served as an economic axis, attracting regionally-based commercial development as well as speculation housing. Much of the housing was built cheaply and hastily, intended for inexpensive rentals, as more upscale developments were not marketable in the

shadow of the "hulking, unsightly" elevated tracks. Predominant among the characteristic housing types were single-family houses and red-brick rowhouses. Since Philadelphia's tenement-control law applied only to buildings of three or more units, the large demand for working-class rentals was accommodated in shoddily-built twins. Apartment houses appeared, but were less prevalent than in the rest of the City (Marsh 1980:176).

The construction of the Market Street El was not celebrated by some residents along the line. One of the El's outspoken critics was Market Street hardware store owner George W. Palmer, who told anyone who would listen: "It is a mistake; they should never have built it!" His objections were described in a newspaper article as follows:

> To him it was an ugly scar down the middle of as pretty a business section as there was in this or any other city. Why, already they had cut the trees down and in place of the gentle, natural shade the new structure put harsh shadows along the street.
>
> Business, Palmer thought, would follow the trees. Why, even the farmers and tradesmen had trouble getting their wagons and carts and buggies around those newly painted pillars of the elevated.
>
> And when the last rivet was driven in the el pillars, the two squares of Market st. between 34th and 36th sts. were bustling business blocks indeed.
>
> Perhaps—if they had only extended the midcity subway instead of putting up that monstrous Market street umbrella, it would brighten business and the neighborhood alike, Palmer ventured. . . .
>
> "This used to be the best business block in West Philadelphia" [Palmer's grandson would later report]. "But when customers had so much trouble getting in here, they stopped first at 40th, and later even farther west as the el grew—to 52nd and then to 60th streets."
>
> Instead of replacing torn down buildings with newer and bigger ones, the land lay idle. Real estate failed to keep pace with advancing valuations elsewhere.
>
> . . . "From the first," says Clarence Dunhour [a grain warehouse employee on Market Street for a half-century], "you could see how it slowed traffic. Then they raised the level of Market street twice since the elevated was put in there and each time the jam at 30th st. got worse. Now [1952] with the big tractor-trailer rigs pulling in here to load grain, it is a real bottleneck. The jam is almost impossible at 30th st.—even if a truck or bus isn't wrecked against the elevated trying to get through" (Riggins 1955).

As Philadelphia's streets became more congested with automobiles following World War I, City officials began pressuring the PRT to accelerate plans for an expanded subway system. The financially beleaguered PRT resisted this pressure, choosing to concentrate on expanding its less-costly streetcar service. Eventually the City decided to construct a subway itself and pay the PRT for infringement of its franchise rights. The City planned to replace a portion of the Market Street Elevated with a subway line extending from 22nd Street westward to 46th Street, passing beneath the Schuylkill River en route. Work on this $29 million project commenced in 1930, but engineering and financial complications forced a stoppage in 1933, when the only completed components were a new bridge across the Schuylkill and a four-track tunnel running under the Schuylkill from 24th to 32nd Streets. There was still an estimated $15 million worth of work to do (Cox 1967:28).

As part of a New Deal effort to create jobs, the Works Progress Administration provided $31,451 in 1940 for the hiring of 107 workers to seal off the uncompleted subway and prevent its deterioration. The City contributed $7,898 toward the costs of this project (*The Evening Bulletin* 1940). After World War II, completion of the line became a priority. Construction resumed in 1947, with workers removing the elevated superstructure east of 46th Street, revitalizing the subway tunnel that had been dormant for over 20 years, and connecting it with the old subway tunnel at 23rd Street. New subway stations were built at 32nd, 36th, and 40th Streets to replace the Elevated stations at 30th/31st, 34th, and 40th Streets. The subway was constructed so it emerged from below ground-level at 44th Street, just north of Market Street, climbed a ramp, and crossed over Market Street to connect with the existing stop at 46th Street, the easternmost Elevated station. Spur lines were added to the subway down 36th Street and Woodland Avenue to University Avenue. By the time the system was opened to service on November 6, 1955, its construction had cost the City $40 million (Cox 1967:32).

The subway alteration went a long way toward alleviating the traffic bottleneck around 30th Street Station. In other ways, however, the Market Street subway-and-elevated system still left a lot to be desired. Construction delays, the use of antiquated rolling stock and equipment, and PRT's inability to finance infrastructure improvements had yielded a rapid transit system that was overtaxed even in its newly-improved state. Larger and faster replacements for the 49-year-old cars were desperately needed, but the PRT did not have money to purchase them. In 1956 the City finally stepped in and spent $24.5 million to obtain 270 high-speed cars, which they leased back to the PRT (Cox 1967:32-34).

The expansion of the 1950s would be the last undertaken on the Market Street line. With the proliferation of automobile traffic, transportation authorities turned their attention to highway construction. Even so, West Philadelphia's Market Street elevated-and-subway line maintained its role as the most important public transportation artery in the City. Commercial development continued to expand around its stations at 40th, 52nd, 60th, and 63rd Streets. Because this development occurred in an uncontrolled fashion, however, the area appeared to many observers to be deteriorating. In the face of perceived overcrowding, increasing crime, slipshod building

construction and maintenance, and inadequate zoning ordinances, many middle-class residents took advantage of mobility afforded by automobiles and fled to the suburbs. Some of those left behind decided to see what could be done about revitalizing West Philadelphia. Led by the University of Pennsylvania and Drexel University, many area institutions joined forces in an attempt to create a safe, healthy environment in West Philadelphia for faculty, staff, and students. Despite the widespread enthusiasm for the "University City" concept, the effort had limited success in improving the quality of life in West Philadelphia (Rosenthal 1963:75-79).

In 1968, a quasi-public non-profit corporation called "the Southeastern Pennsylvania Transportation Authority" (SEPTA) was created to acquire the PRT's assets and operate the Philadelphia area transportation system. Under the new arrangement, local municipalities enjoyed greater control over the network as officials from Philadelphia, Montgomery, Bucks, and Delaware Counties held seats on SEPTA's Board of Directors (Weigley 1982:668). Today, the volume of passenger service on the Market Street elevated-and-subway system still vastly exceeds that of the Broad Street Subway and other commuter lines.

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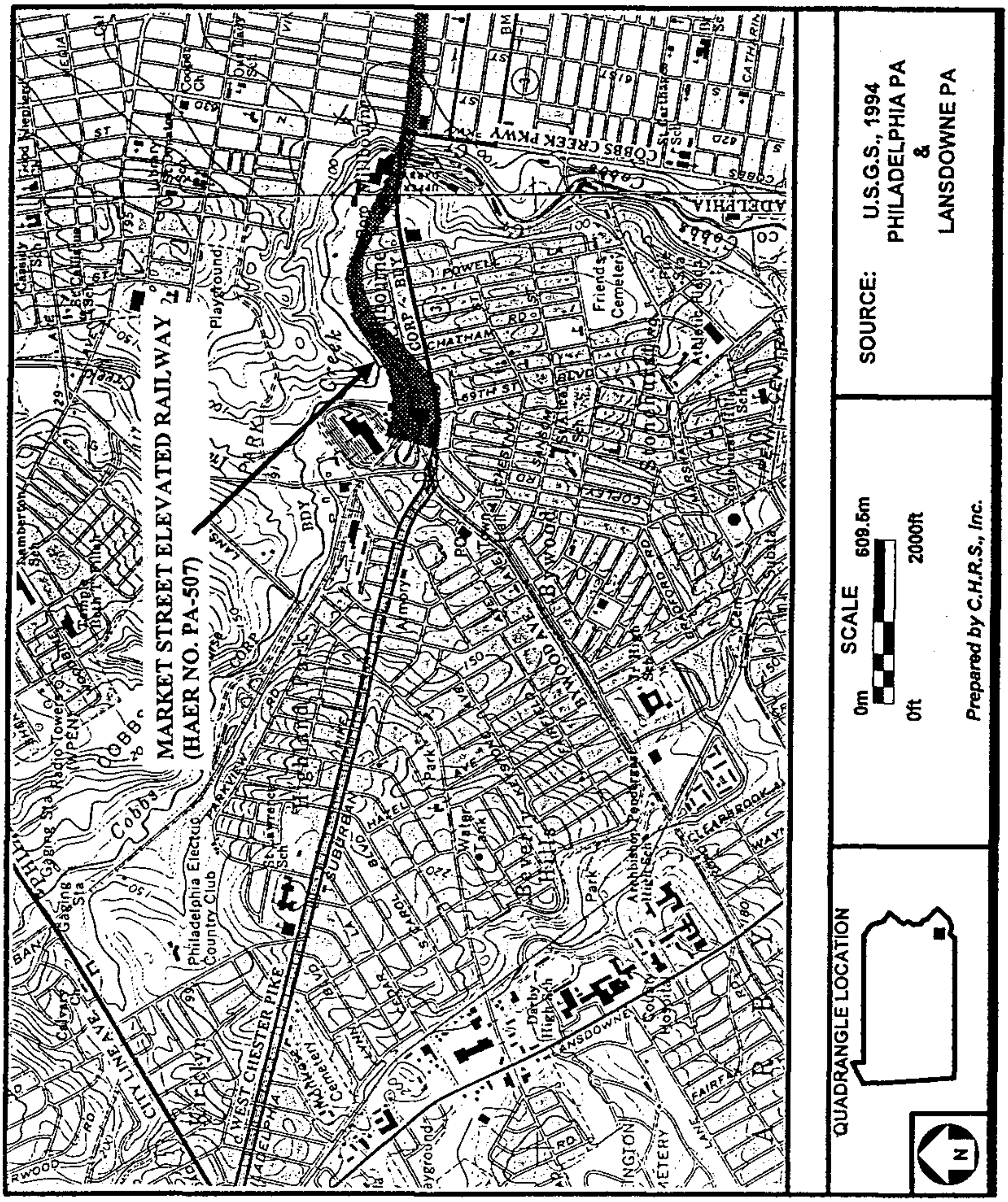
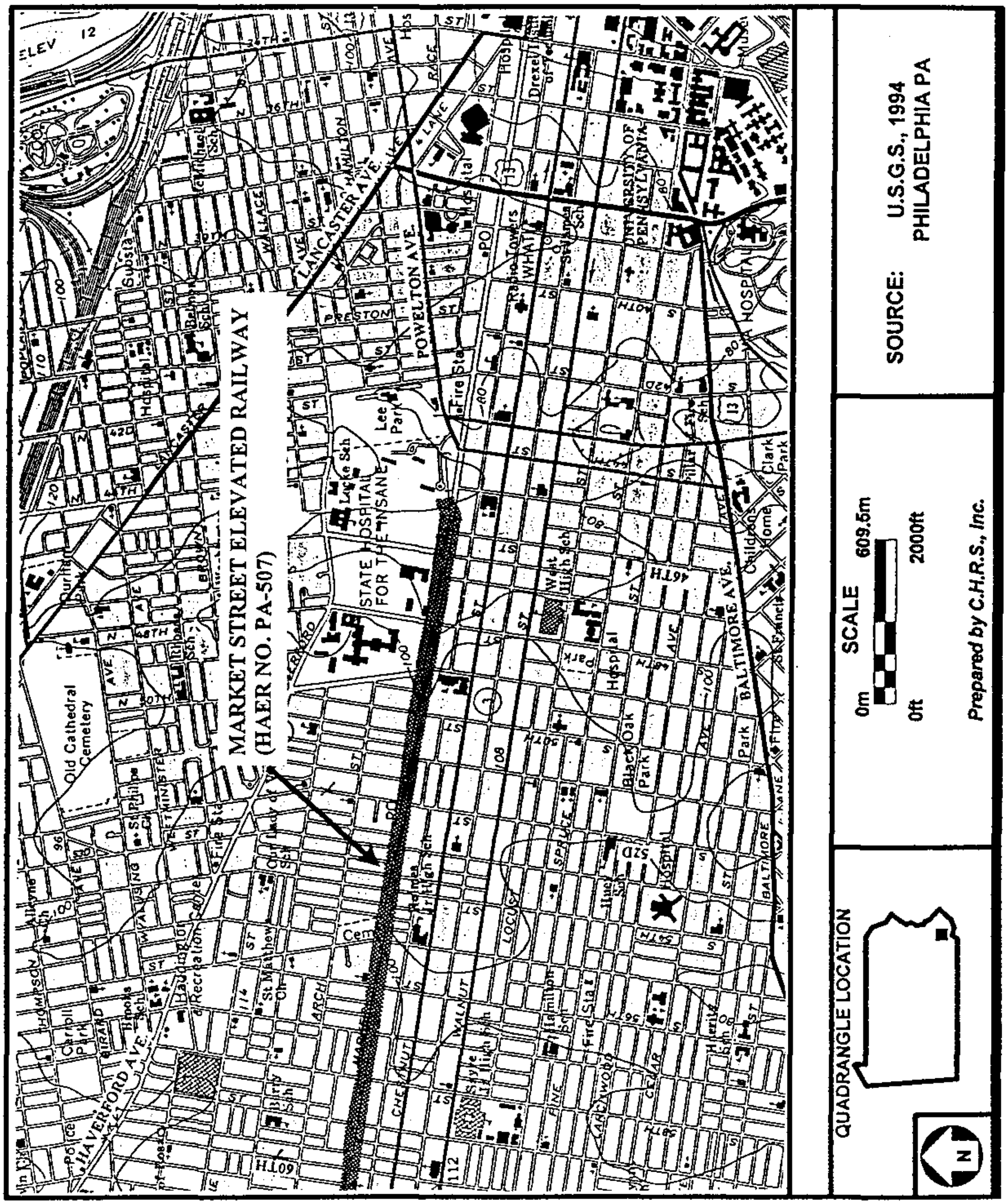
Additional Resources

A large collection of historic photographs is located at the Urban Archives, Temple University, Philadelphia, PA. These photos are of stations and the superstructure, construction of the line, as well as the dismantling of the Schuylkill River to 46th Street portion of the Elevated.


MARKET STREET ELEVATED RAILWAY
(HAER NO. PA-507)
QUADRANGLE LOCATION
SCALE
0m
609.5m
0ft
2000ft
SOURCE:
U.S.G.S., 1994
PHILADELPHIA PA
&
LANSDOWNE PA
Prepared by C.H.R.S., Inc.


MARKET STREET ELEVATED RAILWAY
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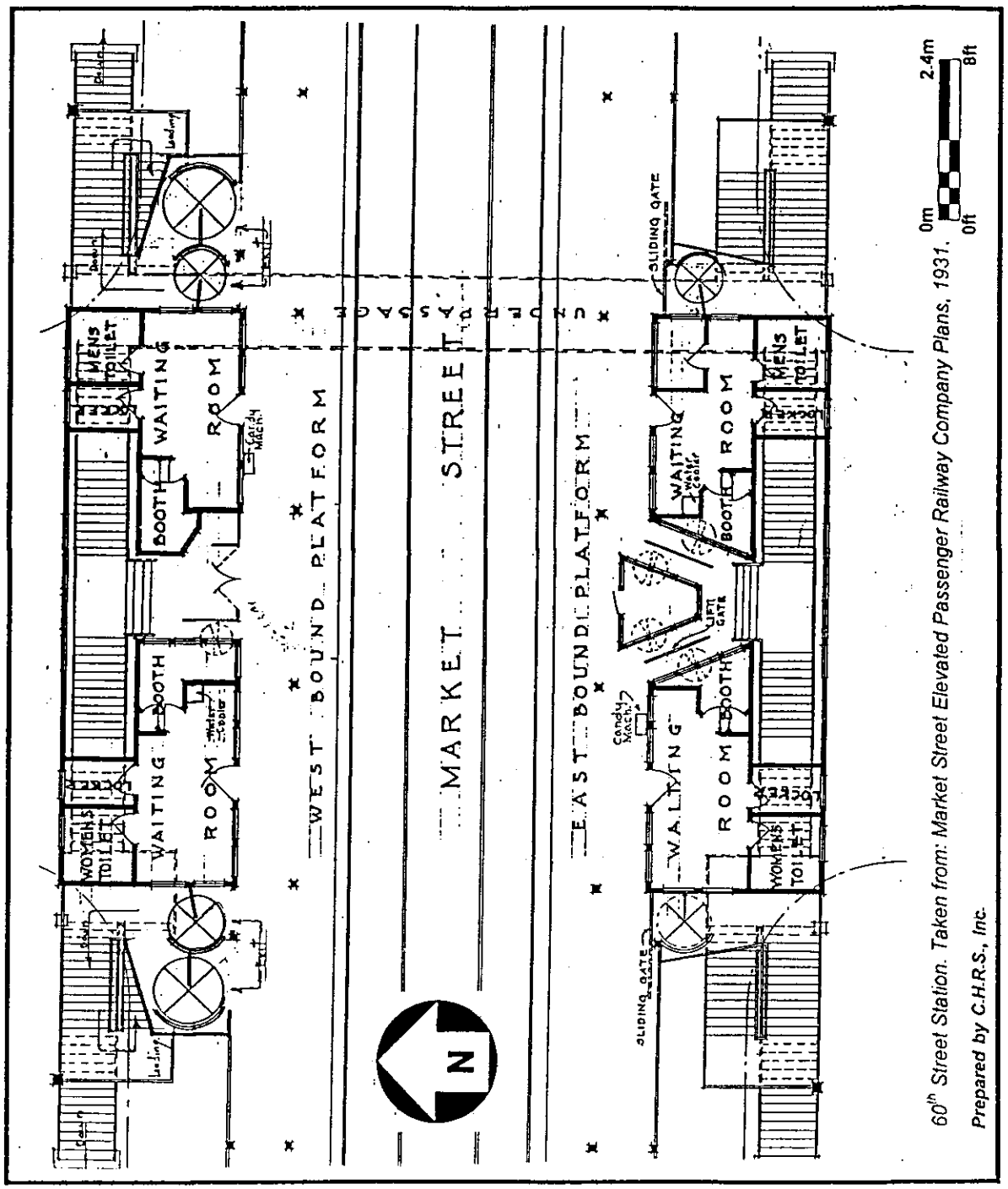

60th Street Station. Taken from: Market Street Elevated Passenger Railway Company Plans, 1931.

Prepared by C.H.R.S., Inc.